



Center for Advanced  
Energy Studies

*A research  
partnership between  
Boise State University,  
Idaho National  
Laboratory, Idaho  
State University and  
University of Idaho.*

## Center for Advanced Energy Studies

# Bioenergy and Bioproducts at the University of Idaho

**Jon Van Gerpen**  
**CAES BioEnergy Initiative**

February 2, 2011

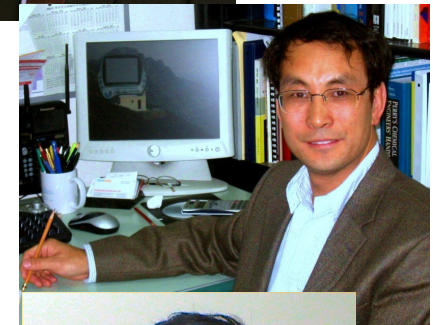


# Biofuels

- Biodiesel from vegetable oils and animal fats.
- Renewable diesel from oils and fats.
- Cellulosic ethanol using encapsulated microbes (with BSU)



Jon Van  
Gerpen



Brian He



Matt Morra:  
Co-product utilization -  
Use of mustard meal  
as an organic pesticide



Dev Shrestha



# Current activities:

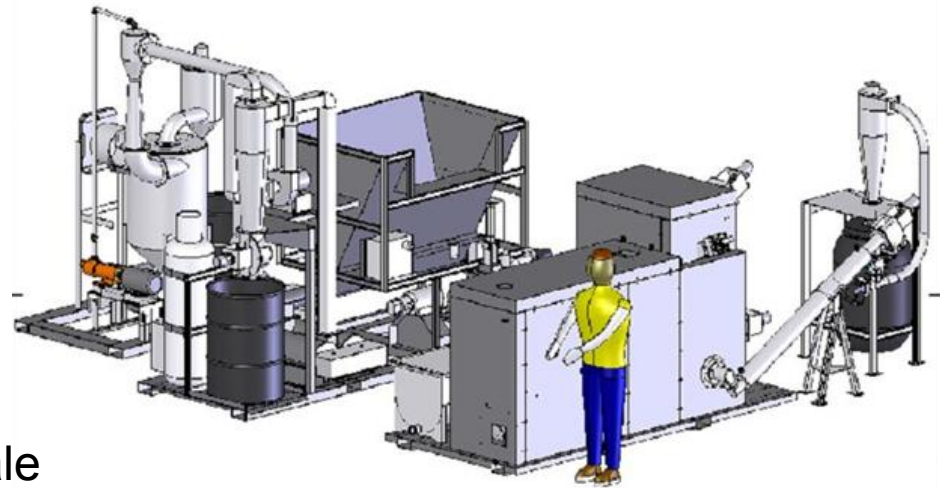
## *Pilot pyrolysis unit*

Armando McDonald – Forest Products

- Acquisition of ABRI pyrolysis unit June 2010
- Received funds from Advanced Trailer Systems to commission
- Work will start soon
- Will be installed on a trailer as a mobile unit
- Used for a demonstration unit



Lab-scale  
pyrolysis  
unit



# Environmental Biotechnology @ UI

**Erik R. Coats, P.E., Ph.D. ([ecoats@uidaho.edu](mailto:ecoats@uidaho.edu))**



- Full-service environmental engineering laboratory
  - Bioreactor operations & testing
  - Water quality analyses
  - Advanced instrumentation
  - Molecular: proteomics, transcriptomics, PCR, DGGE
  - Computer controlled facilities
- Scale model research facilities
- Ongoing research
  - Integrated processes to generate high-value products & revenue for industries producing organic wastes
  - Bio-converting organic wastes (dairy manure, etc.) to bio-plastics
  - Investigating an advanced 2-stage anaerobic digestion process for producing electricity
  - Enhanced biological phosphorus removal from wastewater
  - Reduce GHG and nutrient emissions



Coats' lab-example bioreactor installation



Coats' Scale Model Advanced Wastewater Treatment Facility (5,000 gallons) – demonstration of our ability to move research from the lab to the field